HL POWER COMPANY "Wen" 1 (035-90064) 13/29N/15E MD B&M

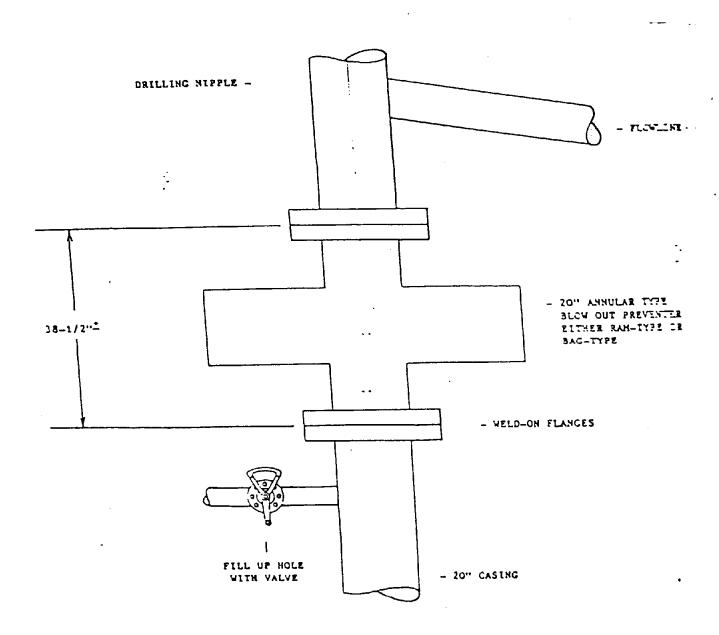


Fig. 6. Blow Out Preventer and Wellhead Assembly for 20 in. casing

MDE. LOGGING, WELLHEAD & DIRECTIONAL PROC. CAMS

WELL WEN-基. /

inoc.						•
DEPTH INTERVAL	MUD TYPE	WEIGHT	API FLUID LOSS	YIELD POINT	РН	Vis
100 - 1000	Gel & Water	8.8	12		10-12	40-45
1000 - 3000'	Gel & Water	9.0	10	4-6	10-12	35-37
3000 - T.D.	Water or lightly gelled	TO BE	DETERMINED	BY SYSTEM		
	water.					
			<u> </u>			ļ
					<u> </u>	<u> </u>

REMARKS Lost Circulation - Lost circulation is most likely to be caused by breaking down of formations because of excessive mud weight. This is best controlled by prevention. A mud weight not to exceed 9.1 lbs/gal is necessary to avoid lost circulation. If a "lost returns" condition is experienced the viscosity should be held in the 36-40 sec/qt range and the mud weight lowered as much as possible. The addition of fibrous material and graded lost circulation material (LCM) may also be necessary. If lost circulation is caused by large fractures or caverns it would be advisable to drill ahead blindly to a casing point as soon as possible or attempt to cement off the lost circulation zone.

LOGGING

DEPTH INTERVAL	LOG TYPES	LOG SCALES				
100 - 1000	IES & Temperature (PCT)	5" = 100'	2" = 100'			
1000 - 3000'	IES, formation density-neutron, temper- lature, caliper, borehole compensated		2" = 100'			
	sonic and fracture finder, cement bond	log.				
3000 - 5000'	IFS, formation density-neutron, temper- ature, dip meter, callper, borehole compensated sonic and fracture finder	5" = 100'	2" = 100'			

IES and temperature logs are required by the California Division of Oil and Gas for all intervals.

WELLHEAD

API NOMINAL SIZE	WORKING PRESSURE	TYPE	MAKE	
20" Flange	100 psi min	Weld-on Top Flange	Rental	
13-3/8" x 13-5/8"-3000	3000 psi	13-3/8" Weld-on x 13-5/8"-3000 AP	I W-K-M/Midway	
12" Valve 400 ANSI	875 psi @ 300 ⁰ F	12" 400 ANSI	W-K-M	
12" 400 x 8" 300	655 psi @ 300 ⁰ F	12" x 8" Pump Hanger Spool	W-K-M/Midway	
* 8" 300 x 8" 300	655 psi @ 300 ⁰ F	8" 300 ANSI	W-K-M	

REMARKS * These items are required to install tubing and pump in case the well requires. pumping and will not flow on its own. These items may be omitted if the well flows.

DIRECTIONAL OR STRAIGHT-HOLE

The proposed hole shall be a straight hole test.

Limits are set on the various hole stages as follows: 50' - 500' Maximum angle to be 50' Maximum rates 50° - 500° Maximum angle to be 50° Maximum rate of change $1-1/2^{\circ}$ per 100° . 500° - 3000° Maximum angle to be 80° Maximum rate of change $1-1/2^{\circ}$ per 100° . 3000° - 5000° Maximum angle to be 10° Maximum rate of change $1-1/2^{\circ}$ per 100° .

Run surveys every 150'. Multi-shot survey may or may not be required at casing points.

Sidetrack may be an alternative for unsuccessful wells. HL POWER COMPANY

"Wen" 1

(035-90064) -12-

13/29N/15E MD B&M

		CASING	, CEMENTIN	IG AND BOP PROCRA		•			
CASING PROGRAM		312	€ 20"	100'	_		WE	WEN-4	T
INTERVAL		EIGHT B/FT	GRADE	JOINT TYPE			SOT, BURST		TENSION
0 - 100'		94	H-40	Welded			NDUC	T	
0 - 100		74	11 40	Merded	$\overline{}$		11000		
									
			DESIGN	CONDITIONS	1		L	1	·
SURFACE BURST PRESSURE	<u> </u>	N/A	PSI	OUTSIDE MUD WT. 10	COLL	APSE) -	:	N/A	PPC
INSIDE MUD WEIGHT (BURST		N/A	PPG	INSIDE MUD WT. (CO		-		N/A	PPC
OUTSIDE MUD WEIGHT (BUR		N/A N/A		FORM. PRESS. GRAD					PPC
FRAC. GRAD. AT SHOE (BU)				BIAXIAL LOAD: COLL			BOUYANCY:		ио 🗌
		<u> </u>		2000 0000			1		
CEMENTING PROGRAM		C1 115	DV DECOU	TION AND RECEEDS					,
SLURRY DESCRIPTION (AND NO	UMBER)	SLUK	KT DESCRIP	TION AND PROPERTI	E3				
272 cubic feet (10	cubic yards) of P	ortland C	oncrete.			•		· · · · · · · · · · · · · · · · · · ·
Construction Grade	Concrete is	adegu	ate.						
						105		16.000	
						DE	SIRED TOP	EXCESS	•
SLURRY VOL CU FT/(S	LURRY NO.)		10 yd ³					'	
SLURRY YIELD - CUBIC FE									
SLURRY DENSITY - PPG									
THICKENING TIME - DEPTH	I SCH/HRS, MIN.		_					· · <u></u>	
COMPRESSIVE STRENGTH	PSI/HOURS				$\neg \dagger$				
		RUNN	ING AND CE	MENTING INSTRUCTION	 2NS		L		 -
SHOE, COLLARIS AND JOINT	STRENGTHENING		······································	•			<u>.</u>		
No cementing shoe.		TYPE AND	SPACING	HL POWE "WER" 1 (035-9) 13/29N	R C	OMPANY	B&M		. —
No centralizers.				13/2					
PREFLUSH, DISPLACEMENT	RATE, PLUGS, RE	CIPROCA	TION, ETC.				_		
Cement to be dumpe installed and ceme	d down annu nted prior	lus fro to laro	om ready m ge rotary	mix cement truck rig moving on l	oca	Conductor tion.	should b	e	
PRESSURE TESTING AND LAN	10ING								
Weld-on 20" flange valve below the fl	for instal	lation	of blow	out preventer an	nd w	eld in 3"	outlet w	rith	
BOP PROGRAM									
API STACK	WORKING PRESSURE	MINIMUN		TYPE			TEST PRESSU		
	P31	17-1/		nnular Preventer	•	RAM TYPE	100		TATING HE

		312		DEPTH			THEL	. L ₁₂ (t	
ASING PROGRAM			13-3/8"	1000				WEN4	
INTERVAL		GHT /FT	GRADE	JOINT TYPE		TOP BURST	BOT. BURST		TENSION
0 1000			K-55	Buttress	-,,	4.59	9.73	2.18	9.99
0 - 1000		4#	K-33	parriess		7.55	3.10	2	3.33
									
						<u> </u>	<u> </u>		
									<u> </u>
						<u> </u>	L	L	<u></u>
				CONDITIONS		·			
SURFACE BURST PRESSURE		500		OUTSIDE MUD WT.				9.1	PPG
	<u> </u>	9.1		INSIDE MUD WT.				0	
OUTSIDE MUD WEIGHT (BURST	<u> </u>	8.6		FORM. PRESS. GR			T		PPG
FRAC. GRAD. AT SHOE (BURS	T) –	9.1	PPG	BIAXIAL LOAD: CO	rr. XX	BURST LXX	BOUYANCY:	YES [_]	но (ХХ)
CEMENTING PROGRAM	•							·	
SLURRY DESCRIPTION (AND NUM	BER)	SLUR	RY DESCRIPT	TION AND PROPER	TIES				
Slurry #1: 1183 cub		8 sac	ks) of AP	I class "G" c	ement	blended	on a rati	o of 1:	:1 with
perlite and 40% by v									
Slurry #2: 200 cubi									
						DE	urface	100%	
0.5% CFR-2		<u> </u>	URRY #1	SLURRY #2			11 ace	100%	
SLURRY VOL CU FT / (SLU	IRRY NO.1	ļ	1183	200					-
SLURRY YIELD - CUBIC FEET	T/SACK		2.12	1.62				_	_
SLURRY DENSITY - PPG			106	1.16	-		'		
THICKENING TIME - DEPTH S	CH/HRS, MIN.	† 	2-3 Hours	2-3. Hour			લ		
COMPRESSIVE STRENGTH - P	SI/HOURS	1500	O psi/24 H	rs 2895 psi/2	4 Hrs		. .		
SHOE, COLLARIS) AND JOINT ST	BENGTHEN C	RUNN	ING AND CEN	ENTING INSTRUC	TIONS	a co,	WD Baw		·
1) Use stab-in type	_	shoe			POWE	1 25A)	MD		
Weld-on shoe.	7			HL	en"	300 SE			
Thread-lock bott	tom 3 joint	s of	casing.	, 6	03/20	1006A) 1006A) 1006E			
CENTRALIZERS AND SCRATCHE	RS - NUMBER, T	YPE AND	DSPACING		73,				
1) Centralizer in a		ottom	2 joints	and 1 central		on every	other too	l join	t
back up to surf	ace.								
PREFLUSH, DISPLACEMENT RA	7 5 0								
See Pages 15 and 16	TE, MEUGS, REC	IPROCA	TION, ETC.						
PRESSURE TESTING AND LAND		<u> </u>		hlas ast assa					
 Wait 30 minutes and blow out prevent 	before ara ters. 3)	ın cei Weld (ment from on 13-3/8"	blow but prev wellhead. W	enter eld i	r. 21 Cu nternally	t and rem and exte	ove 20 rnallv	casır Test
<u> through port betwee</u>									
BOP PROGRAM						· · · · · · · · · · · · · · · · · · ·			
	PSI	MINIMUL BORE INCHES		TYPE		RAM TYPE	ANNULAR		
9	60 psi	12-1/	4 "	See Figure 7		960	960		

CASING, CEMENTING AND BOP PROCRAMS

HL POWER COMPANY
HIL POWER COMPANY
HIL POWER COMPANY
13129N115E ND BRM

PROCEDURE FOR RUNNING AND CEMENTING 13-3/8" CASING

- Drill to casing depth.
- 2) Circulate for 2-3 hours until logging company arrives on location.
- Pull out of hole.
- 4) Rig up loggers and run temperature log, electric logs, then temperature log again. Wait on bottom with temperature for 30 minutes before pulling out of hole, or as directed.
- 5) Rig down loggers and run in hole with bit and monel to total depth. Pick up excess drill pipe needed to stab into shoe for cementing the 13-3/8" casing.
- 6) Circulate for 2 hours short trip and circulate for 1-2 hours.
- 7) Pull out of hole and rig up to run 13-3/8" casing. Run multi-shot survey while pulling out of hole.
- 8) Run 13-3/8" casing with stab-in shoe on bottom and centralizers located one in middle of bottom two joints and then one every other collar without any on top 300'.
- 9) Set casing in elevators on spider. Do not set casing slips.
- 10) Rig up with landing plate on top of 13-3/8" casing. Run drill pipe into 13-3/8" with stab-in sub on bottom. Stab-in shoe and rig up to circulate. Tie-down drill pipe.
- 11) Circulate one hour to clean up and cool down hole.
- 12) Riq up to cement.
- Pump in 30 BBLS viscous geo-gel mud spacer. (Viscous mud spacer should be blended in ribbon blender.) If lost circulation is a problem, preced the geo-gel spacer with 30 BBLS fresh water, 50 BBLS flo-chek, then 30 BBLS fresh water.
- Pump cement without any water spacers. Pump Slurry #1: 1:1 class "G" cement and perlite blended with 40% silica flour, 3% gel and 0.5% CFR-2. Retard as needed. Pump this cement until you see returns of cement.
- Pump Slurry #2 cement: class "G" cement with 40% silica flour and 0.5% CFR-2. Retard as needed. Pump 200 cubic feet of this Slurry #2 cement. This last 100 cubic feet should be staged in: Pump 35 cubic feet and shut down for 5-10 minutes, then pump 35 cubic feet and shut down again for 5-10 minutes before pumping last 30 cubic feet. Check for fall back in annulus each time. Pull out of stab-in shoe and clear drill pipe, dropping all cement from drill pipe on top of shoe.
- 16) Rig down circulating equipment and pull out of hole with drill pipe.
- 17) Hook up to 13-3/8" casing elevators and pick up slightly to remove spider, then center 13-3/8" casing in stack.
- 18) Drain blow out preventer equipment after 30 minutes from the time cement was in place.

- 19) Wait on cement six hours before landing casing. Check for cement fall back in annulus periodically.
- 20) Cut off 13-3/8" casing. Remove blow out preventer equipment. Weld-on 13-3/8" casing head and nipple up blow out preventer equipment.
- 21) Test blow out preventer equipment to 750 psi with Division of Oil and Gas Representative on location to witness test.
- 22) Change out bottom hole drilling assembly for 12-1/4" tools and run in hole.

HL POWER COMPANY
"WER" 1
(035-90064)
13/29N/15E MD B&M

•		CASING, CE	MENTING	AND BOP PROGRAMS		-		
CASING PROGRAM	TABLE 2	SIZE	-5/8"	3000		WEG	WENM	
INTERVAL		HT G	RADE	JOINT TYPE		ULATED SAFE	1 1	
		.8/FT		D.,++,a.	TOP BURS			TENSION
800 - 3000	0	36	K-55	Buttress	7.01	4.00	1.42	9.49
	MANY	·						
HL POWER CO	ML 1915							
"Wen" 1 (035-90064)	_ naM							
13/29N/15E	MD B&M							
			DESIGN (CONDITIONS				
SURFACE BURST PRESSU	JRE -	960	PSI	OUTSIDE MUD WT. (COL	LAPSE) -	<u> </u>	9.1	PPG
INSIDE MUD WEIGHT (BUI	RST) -	9.1	PPG	INSIDE MUD WT. ICOLL	APSE) -		0	PPG
OUTSIDE MUD WEIGHT (B	BURST) -	8.6	PPG	FORM, PRESS, GRAD, A	T SHOE (CO	LLAPSE1 - S	9.1	PPG
FRAC. GRAD. AT SHOE	BURST) -	14.25	PPG	BIAXIAL LOAD: COLL. [X	BURST [X]	BOUYANCY:	YES 🗍	ио 🟋
CEMENTING PROGRAM	· · · · · · · · · · · · · · · · · · ·							<u>-</u>
	<u> </u>	SLUPRY	DESCRIPT	TION AND PROPERTIES				
SLURRY DESCRIPTION (AND								
1047 cubic feet (
40% by volume of	silica flour	and 3% ge	1 and C	0.5% CFR-2 (fricti	on reduce	er) follow	ed by 3	00
cubic feet (185 s	sacks) of clas	s "G" cem	ent ble	ended with 40% sil		and 0.5%	CFR-2.	
		SLURF	RY #1	SLURRY #2	٦	800	100	
SLURRY VOL CU FT /	(SLURRY NO.)	10	47	300				
SLURRY YIELD - CUBIC		2.	12	1.62				
SLURRY DENSITY - PPG		1	06	116		_		
THICKENING TIME - DEF	TH SCH/HRS, MIN	. 2-3	Hrs.	2-3 Hrs.				
COMPRESSIVE STRENGT	TH - PSI/HOURS	1500 ps	i/24 Hr	s 2895 psi/24 Hrs				
				ENTING INSTRUCTIONS			· · · · · · · · · · · · · · · · · · ·	
SHOE, COLLARISI AND JOI								
	llar 2 joints							
2) Run liner in	on Midway ty	pe liner h	nanger	and hang 2001 up	into 13-3	/8" casing	•	
		<u> </u>						
1) Run 1 centra				ottom 2 joints and	d 1 centr	alizer eve	rv othe	er
				the 9-5/8" liner				,
	·							
PREFLUSH, DISPLACEMEN	NT RATE, PLUGS, RE	CIPROCATION	. ETC.	-				
See Pages 18	and 19 .							
133 (4903 11	.							
. 1) Once top plu		check for	r flow	back then pull ou	t of line	n hanger a	and this	n to la
down liner setti	ing tool. Run	in open (ended a	nd circulate out	excess ce	ment down	to top	of
liner. 2) Wait	6 hours 3)	Test la	p to 70	<u>O psi surface pre</u>	ssure. 4)	Squeeze	lap if ne	<u>rcessary</u>
BOP PROGRAM	WORKING	MINIMUM				TEST PRESSI	1054 - 5**	
ARRANGEMENT CODE	PRESSURE PSI	BORE INCHES		TYPE	RAM TYP			TATING HEA

12-1/4"

960

.....

960

See Figure 7

960

PROCEDURE FOR RUNNING AND CEMENTING 9-5/8" CASING

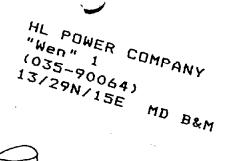
- 1) Drill to casing depth.
- 2) Circulate for 2-3 hours until loggers arrive on location.
- 3) Pull out of hole.
- 4) Rig up and run temperature log, electric logs, then temperature log again. Wait on bottom with temperature for 30 minutes before pulling out of hole, or as directed.
- 5) Rig down loggers and run in hole with bit and monel to total depth.
- 6) Circulate for 2 hours, short trip and circulate for 1-2 hours.
- 7) Pull out of hole and rig up to run 9-5/8" casing. Run multi-shot survey while pulling out of hole.
- 8) Run 9-5/8" casing with shoe on bottom and centralizers located one in middle of bottom two joints and then one every other collar without any on top 300'. Hang liner using a Midway type hanger 200' up inside 13-3/8" casing on 4-1/2" drill pipe.
- 9) Hang liner, tie down drill pipe and rig up cement head.
- 10) Circulate one hour to clean up and cool down hole.
- 11) Rig up to cement.
- 12) If lost circulation is encountered, pump 10 BBLS fresh water ahead of 50 BBLS of flo-chek.
- 13) Pump in 30 BBLS viscous geo-gel mud preflush. (Viscous mud spacer should be blended in ribbon blender).
- 14) Pump cement without any water spacers. Pump Slurry #1: 1:1 class "G" and perlite blended with 40% silica flour, 3% gel and 0.5% CFR-2. Retard to give 2-3 hours pumping time at 350° F. Use 75-100% excess.
- 15) Pump Slurry #2: class "G" cement with 40% silica flour and 0.5% CFR-2.
 Retard as needed. Pump 300 cubic feet of this Slurry #2 cement. This
 last 100 cubic feet should be staged in: Pump 35 cubic feet and shut down
 for 5-10 minutes, then pump 35 cubic feet and shut down again for 5-10
 minutes before pumping last 30 cubic feet.
- 16) Rig down circulating equipment, pull out of hanger with drill pipe and pull out of hole.
- 17) Run in hole with 12-1/4" bit to top of liner and circulate out to clean out excess cement.
- 18) Trip to change bits to 8-3/4" and clean outcement from inside the 9-5/8" liner top.
- 19) Wait on cement six hours and test liner lap to 700 psi surface pressure. Squeeze if necessary.

- 20) Test blow out prevention equipment to 700 psi with Division of Oil and Gas Representative on location to witness test.
- 21) Change out bottom hole drilling assembly for 8-3/4" tools and run in hole to drill ahead.

HL POWER COMPANY
"WEN" 10064) MD B&M
(035-90065E MD B&M
13/29N/15E

		SIZE		DEPTH			MEI	L L	
CASING PROGRAM		1	7"	5000		PTIONAL)		WEN-	<u> </u>
INTERVAL		IGHT B/FT	GRADE	T THIOL	YPE		BOT. BURST	Y	TENSION
2000 5000		26	N-80	L. T.	& C	SLOT	TED		9.0
2800 - 5000 '			11 00		<u> </u>	(2" x 1	/8" slots	, 90°	apart
HL POWER COMP	YNA						enters)		
∟ «Men" 1									
(035-90064) 13/29N/15E M	D B&M		_						
			DESIGN	CONDITIONS				· · · · · · · · · · · · · · · · · · ·	
SURFACE BURST PRESSURE	-	N/A	PSI	OUTSIDE MUD	WT. (COLL	.APSE) -		N/A	PPG
INSIDE MUD WEIGHT [BURST	r)	N/A	PPG	INSIDE MUD W	T. (COLLA	PSE) -		N/A	PPG
OUTSIDE MUD WEIGHT (BUR	ST) –	N/A	PPG	FORM. PRESS.	GRAD, AT	SHOE (COL	LAPSE1 -	N/A	PPG
FRAC. GRAD. AT SHOE (BUI	RST) -	N/A	PPG	BIAXIAL LOAD:	COLL. [BURST 🔲	BOUYANCY:	YES [но 🗌
CEMENTING PROGRAM									
	•	SLURR	Y DESCRIP	TION AND PRO	PERTIES				
SLURRY DESCRIPTION LAND NO		•							
Liner to be hung wi	th 200' of 1	ap ın	the 9-5/	B" liner and	<u>d not ce</u>	mented.			
			· · ·						
						DE	SIRED TOP	EXCES	5
					·				
SLURRY VOL CU FT / ISI	LURRY NO.)		N/A						•
SLURRY YIELD - CUBIC FE	ET/SACK								
SLURRY DENSITY - PPG					-				
THICKENING TIME - DEPTH	SCH/HRS, MIN.								
COMPRESSIVE STRENGTH -	PSI/HOURS								
		RUNNI	NG AND CE	MENTING INSTR	RUCTIONS				
SHOE, COLLARISI AND JOINT				****					
1) Guide shoe only 2) No joints threa			d except	for shoe.					
CENTRALIZERS AND SCRATE	UFDY, NIMESE 3	VDE AND	38451N5						
	•			ن د اد الایتین میم		. 4	1 - 1 - 1	د - اد _{ما م}	
1) No centralizers	s or scratch	ers in	case iin	er would re	equire re	etrieving	at a lat	er dat	e.
PREFLUSH, DISPLACEMENT	RATE, PLUGS, REG	CIPROCAT	ION, ETC.	<u> </u>					
N/A									
PRESSURE TESTING AND LAN	IDING								
l) Liner hung with	h Midway typ	e liner	r hanger.						
BOP PROGRAM		,						·	
API STACK	WORKING PRESSURE	MINIMUM		TYPE			TEST PRESSU	JRES - PS	
ARRANGEMENT CODE	PSI	INCHES		1722	 	RAM TYPE	ANNULAR	TYPE RO	TATING HEAD
{			1					- 1	

CASING, CEMENTING AND BOP PROGRAMS



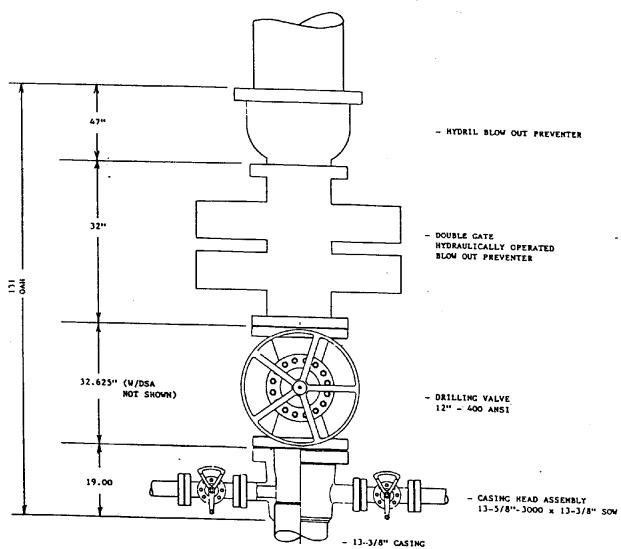


Figure 7. Blow Out Preventer and Wellhead Assembly for 13-3/8 in. Casing

IL POWER COMPANY Wen" 1 (035-90064) [3/29N/15E MD B&M

5. WELL COMPLETION

Completion techniques for this well will depend on its potential for production. There are three options or possibilities for completion:

- a. Completion as a flowing (artesian) well. If during the testing phases the well flows with commercial temperatures and pressures, the well will be completed with a wellhead design as shown in Figure 8 and as specified in Table 1.
- b. Completion with a downhole pump. If the well will not flow, but the fluid level in the hole recovers, it may be possible to complete the well using a 6-3/4 in. downhole pump for geothermal service. The pump will be hung on 8-5/8 in. or smaller tubing, and will be capable of pumping approximately 650 gpm. The wellhead design for a pumping well is shown in Figure 9; specifications are given in Table 1. (An alternate pump with surface motor will be considered.)
- c. Abandon or sidetrack well. If the well produces little or no fluids, and fluid level does not recover rapidly, or its temperature is inadequate, it may be necessary to plug and abandon the well. If temperature is adequate but permeability is lacking, sidetracking the well may be an alternative to abandonment.

An outline of the completion sequence is given below:

Initial Evaluation

- 1. Upon reaching total depth the well will be logged.
- 2. The mud will be displaced with water.
- 3. The well will then be evacuated using compressed air or nitrogen.
- 4. If well flows to surface, it will be tested at various rates and pressures.
- 5. If the fluid temperature and production rate appears commercial, the well will be completed as outlined in steps 6 through 10. If the well does not flow adequately to the surface, but commercial production appears possible with pumping (based on recovery rates of fluid level after evacuation), the well will be completed with tubing and pump, as

HL POWER COMPANY
"Wen" 1
(035-90064)
13/29N/15E MD B&M

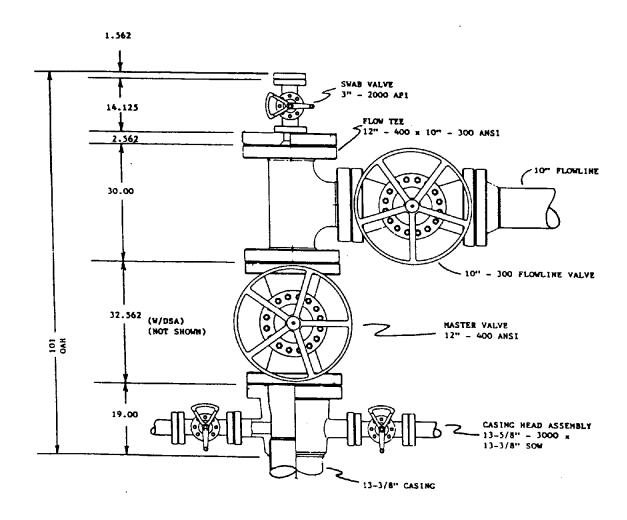
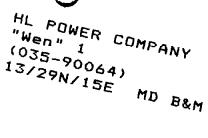


Figure 8. Wellhead Completion for Flowing Well



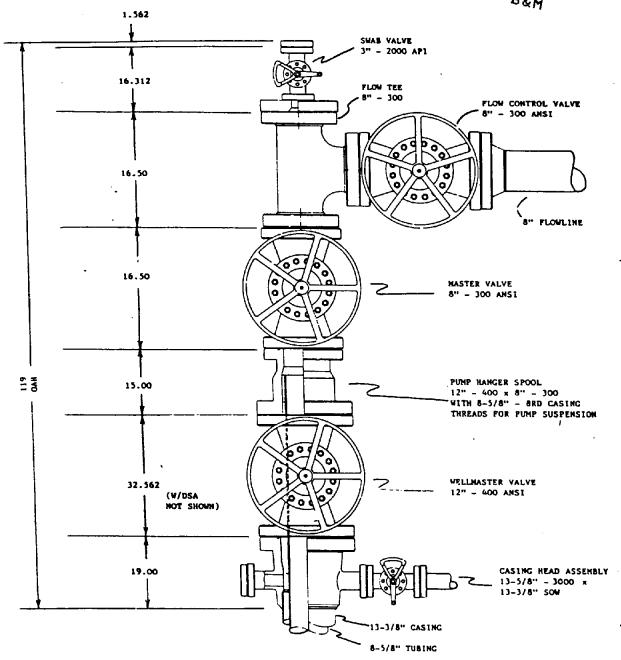


Figure 9. Wellhead Completion for Pumping Well

HL POWER COMPANY "Wen" 1 (035-90064) 13/29N/15E MD B&M outlined in steps 11 through 19. (A rental unit will be considered for evaluation tests.)
Additional down-hole temperature logs may be necessary after evacuation in order to establish fluid temperatures. If fluid-level recovery indicates insufficient permeability for commercial production, or if temperature logs indicate that temperatures are inadequate, the well will be abandoned or sidetracked (step 20).

Completion for Flowing Well

- 6. Run in hole to total depth and clean out any fill.
- 7. Run slotted liner from 200 feet inside the 9-5/8 in. casing to total depth and hang it with Midway-type liner hanger.
- 8. Displace drilling mud with water if mud was required to clean out the hole.
- 9. Evacuate the well with compressed air or nitrogen.
- 10. Lay down drill pipe and move off rig. Well completed as shown in Figure 8.

Completion for Pumping Well

- 11. Run in hole to total depth and clean out any fill.
- 12. Run slotted liner from 200 feet up in 9-5/8 in. casing to total depth and hang it with Midway-type liner hanger.
- 13. Displace drilling mud with water if mud was required to clean out the hole.
- 14. Evacuate the well with compressed air or nitrogen.
- 15. Pick up 6-3/4 in. O.D. pump (Reda Model #675 or equivalent) on 8-5/8 in. or smaller tubing (if required to enter 9-5/8 in. casing). Run in hole with pump and tubing to approximately 200 feet below the static fluid level.
- 16. Install pump hanger spool with electic cable port as shown in Figure 9.
- 17. Flow well with pump and test at a minimum of 3 different flow rates, measuring drawdown.
- 18. Adjust pump depth, if necessary, based on drawdown tests.

19. Lay down drill pipe. Move rig off location.

Abandonment or Sidetrack

20. Abandonment will be according to the State of California Division of Oil and Gas Regulations. Depth and direction of a possible sidetrack will be determined by the site geologist in consultation with GeoProducts and DOE.

HL POWER COMPANY
"Wen" 1
(035-90064) MD B&M
13/29N/15E

RESOURCES AGENCY OF CALIFORNIA DEPARTMENT OF CONSERVATION

DIVISION OF



Notice of Intention to Dril

 AND (GAS I Resources V	[] [] Veil	JUN 13	1981	
		DIV	ISION OF C	DL & G	A\$
	FOR DIVISION	USE ONLY	SACRAME	OTM	
 MAP		T	FORMS	5	

In compliance v	vith Section	n 3724, Division	3, Chapter 4,	Public Resource	es Code, notice is	hereby given that it
is our intention	to commen	ce drilling well	WEN 2	James and Number	, API l	No. <u>035-9004</u> , (Assigned by Division)
Sec. 13, T.	29N , R	15E,B. &	м., _ W	ENDEL	Field, Las	Sen County.
Legal descriptio	n of mine	al-right lease, co	nsisting of _	280 acres, is	as fallows	nap or plat drawn to scale)
_		and surface lease and mineral lea				er is no, attach legal
Location of wel	l	meters a	along section	1/property line	and me	ters (Direction) at right
angles to said li	ne from th		orner of sect	tion/property Cross out one)		. (1
is the well locat	ion within	90 meters of a ha	abitation or	place of public a	ussemblage?	Yes No No
If well is to be	directiona	lly drilled, show p	proposed co	ordinates (from	surface location)	at total depth: N/A
		meters // (Direction) e sea level 125			nie ((Direction) RT from en
		aken from top of	(Derrick Floor, R	otary Table,or Kelly Bus	ining)	neters above ground.
SIZE OF CASING CM A P I	WEIGHT (Kg)	GRADE AND TYPE	TOP	воттом	CEMENTING DEPTHS	CALCULATED FILL BEHIND CASING
50.8 cm	35.4	welded A-53steel	6m	<u>+</u> 36m	6-36m	8m ³
34 cm	30.9	seamle K-55 STC	6m	+310m	6- 1 310m	39m ³
24.4 cm	16.3	seamle K-55 BT	ss + -250m	+921m	±250-±921r	
Intended zone(s) of completion	Fractu	drilling program red Volcani (Name, depth, and exp	must be sul	omitted in additional (Hydrostat: -1700m, Es	ion to the above pic) timated total dept we are to notify	h meters.
Numa of Quarator	ER COMI				(Corporation, Partnersh	······
Address 1330	Broadwa	У		City	đ	Zip Code 94612
Telephone Number 893-8365		Filing Notice Johnson		Signature	115	Date 6/9/81

This notice, the appropriate drilling fee, an indemnity or cash bond and approval of the Oil and Gas Supervisor must be received before drilling begins. If drilling has not commenced within one year of receipt of this notice, the notice and approval will be con-

sidered cancelled.